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Jeong-II Seo

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EXAMINER

SAUNDERS JR, JOSEPH

ART UNIT

PAPER NUMBER

2615

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/531,635	Applicant(s) SEO ET AL.	
	Examiner Joseph Saunders	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1-13-06, 3-7-08</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the initial office action based on the application filed November 3, 2005.
Claims 1 – 18 are currently pending and considered below.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Korea on October 15, 2002 and October 14, 2003. It is noted, however, that applicant has not filed a certified copy of the 10-2002-0062962 and 10-2003-0071345 applications as required by 35 U.S.C. 119(b).

Drawings

3. The drawings are objected to because in Fig. 5 reference number 201 should be corrected to 103. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date

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of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. Figure 6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1 and 10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 22 of copending Application No. 10/512,952. Although the conflicting claims are not identical, they are not patentably distinct from each other because.

Claim 1: Application No. 10/512,952 discloses in claim 1 an apparatus for adapting an audio signal for single-source multi-use, comprising: an audio usage environment information management means for collecting, describing and managing audio usage environment information from each user terminal that consumes the audio signal (an audio usage environment information managing means for acquiring, describing and managing audio usage environment information from a user terminal which consumes audio signal); and an audio adaptation means for adapting the audio signal so that the audio signal is outputted to the user terminal suitably to the audio usage environment information (an audio adaptation means for adapting the audio signal to the audio usage environment information to generate adapted audio signal and outputting the adapted audio signal to the user terminal), wherein the audio usage environment information includes user characteristics information that describes sound field preference of the

user for the audio signal (wherein the audio usage environment information includes user characteristic information that describes the user's preference for the audio signal).

Claim 10: Application No. 10/512,952 discloses in claim 22 a method for adapting an audio signal for single-source multi-use, comprising the steps of: a) collecting, describing and managing audio usage environment information from each user terminal that consumes the audio signal (a) acquiring, describing and managing audio usage environment information from a user terminal that consumes audio signal); and b) adapting the audio signal so that the audio signal is outputted to the user terminal suitably to the audio usage environment information (b) adapting the audio signal to the audio usage environment information to generate adapted audio signal and outputting the adapted audio signal to the user terminal), wherein the audio usage environment information includes user characteristics information that describes sound field preference of the user for the audio signal (wherein the audio usage environment information includes user characteristic information that describes the user's preference for the audio signal).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1, 4, 10, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by MPEG-21 Overview v.4.

Claim 1: MPEG-21 Overview v.4 discloses an apparatus for adapting an audio signal for single-source multi-use (MPEG-21), comprising: an audio usage environment information management means for collecting, describing and managing (The Digital Item Declaration Model describes a set of abstract terms and concepts to form a useful model for defining Digital Items. Within this model, a Digital Item is the digital representation of ?a work?, and as such, it is the thing that is acted upon (managed, described, exchanged, collected, etc.) within the model, 6.2 page 8) audio usage environment information (Natural Environment Characteristics: Description tools that specify the location and time of a User in a given environment, as well as audio-visual characteristics of the natural environment, which may include auditory noise levels and illumination properties, 6.7 page 15) from each user terminal that consumes the audio signal (diverse sets of Users each with terminal(s), 6.7 page 14); and an audio adaptation means for adapting the audio signal (A *resource* is an individually identifiable asset such as a video or audio clip, an image, or a textual asset, 6.2.11 page 9) so that the audio signal is outputted to the user terminal suitably to the audio usage environment information (Resource Adaptation Engine, Figure 4 page 15), wherein the audio usage environment information includes user characteristics information that describes sound field preference of the user for the audio signal (User Characteristics: Description tools that specify the characteristics of a User, including preferences to

particular media resources, preferences regarding the presentation of media resources, and the mobility characteristics of a User. Additionally, description tools to support the accessibility of Digital Items to various users, including those with audio-visual impairments, are being considered, 6.7 page 15).

Claim 4: MPEG-21 Overview v.4 discloses the apparatus as recited in claim 1, wherein the user characteristics information includes preference for perceptual parameters (User Characteristics: Description tools that specify the characteristics of a User, including preferences to particular media resources, **preferences regarding the presentation of media resources**, and the mobility characteristics of a User. **Additionally, description tools to support the accessibility of Digital Items to various users, including those with audio-visual impairments, are being considered**, 6.7 page 15)

of the audio signal (A *resource* is an individually identifiable asset such as a video or audio clip, an image, or a textual asset, 6.2.11 page 9), and the audio adaptation means adapts the audio signal and transmits the adapted audio signal to the user terminal by changing the sound field characteristics of the audio signal based on the preference for the perceptual parameters (Resource Adaptation Engine, 6.7 and Figure 4 pages 14 – 15).

Claim 10: MPEG-21 Overview v.4 discloses a method for adapting an audio signal for single-source multi-use (MPEG-21), comprising the steps of: a) collecting, describing and managing (The Digital Item Declaration Model describes a set of abstract terms and

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concepts to form a useful model for defining Digital Items. Within this model, a Digital Item is the digital representation of "a work", and as such, it is the thing that is acted upon (managed, described, exchanged, collected, etc.) within the model, 6.2 page 8) audio usage environment information (Natural Environment Characteristics: Description tools that specify the location and time of a User in a given environment, as well as audio-visual characteristics of the natural environment, which may include auditory noise levels and illumination properties, 6.7 page 15) from each user terminal that consumes the audio signal (diverse sets of Users each with terminal(s), 6.7 page 14); and b) adapting the audio signal (A *resource* is an individually identifiable asset such as a video or audio clip, an image, or a textual asset, 6.2.11 page 9) so that the audio signal is outputted to the user terminal suitably to the audio usage environment information (Resource Adaptation Engine, Figure 4 page 15), wherein the audio usage environment information includes user characteristics information that describes sound field preference of the user for the audio signal (User Characteristics: Description tools that specify the characteristics of a User, including preferences to particular media resources, preferences regarding the presentation of media resources, and the mobility characteristics of a User. Additionally, description tools to support the accessibility of Digital Items to various users, including those with audio-visual impairments, are being considered, 6.7 page 15).

Claim 13 is substantially similar in scope to claim 4 and therefore is rejected using the same rationale.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 3, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over MPEG-21 Overview v.4 in view of Trivi et al. (Rendering MPEG-4 AABIFS Content Through A Low-Level Cross-Platform 3D Audio API), hereinafter Trivi.

Claim 2: MPEG-21 Overview v.4 discloses the apparatus as recited in claim 1, wherein the audio adaptation means adapts the audio signal, and transmits the adapted audio signal to the user terminal by changing the sound field characteristics of the audio signal based on the preference of the user. MPEG-21 Overview v.4 however does not explicitly state that the characteristics information includes preference for **impulse response**, and the audio adaptation means adapts the audio signal, and transmits the adapted audio signal to the user terminal by changing the sound field characteristics of the audio signal based on the preference for the impulse response.

Trivi discloses in an MPEG-4 terminal supporting AABIFS content allowing for the description and rendering of virtual audio environments (Abstract). Trivi teaches that

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the environmental model can take a perceptual approach where perceptual parameters define a set of environmental parameters that describe how the listener will perceive the interaction between the room and the sound source. Trivi further teaches perceptual parameters are used to alter a generic impulse response model or impulse response (Figure 1). The perceptual parameters defining the impulse response further include decay times and energy or amplitude levels. (2.2.3 Environmental model: perceptual approach). Therefore given the teachings of Trivi of defining perceptual parameters for an MPEG-4 terminal to allow for description and rendering of virtual audio environments, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate these teachings in the MPEG-21 standard to allow for a virtual audio environment to be described and rendered based on impulse response according to user preference, since MPEG-21 calls for a way of describing user preferences regarding the presentation of media resources and Trivi's teachings provides such a solution.

Claim 3: MPEG-21 Overview v.4 and Trivi disclose the apparatus as recited in claim 2, wherein the impulse response is described with time and amplitude (The perceptual parameters defining the impulse response further include decay times and energy or amplitude levels, Figure 1 and 2.2.3 Environmental model: perceptual approach).

Claims 11 and 12 are substantially similar in scope to claims 2 and 3 respectively, and

therefore are rejected using the same rationale.

11. Claims 5 – 9 and 14 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over MPEG-21 Overview v.4 in view of Rubak et al. (Design and Evaluation of Digital Filters Applied to Loudspeaker/Room Equalization), hereinafter Rubak.

Claim 5: MPEG-21 Overview v.4 discloses the apparatus as recited in claim 1, wherein the user characteristics information includes sound environment information of a space where the user consumes the audio signal (Natural Environment Characteristics: Description tools that specify the location and time of a User in a given environment, **as well as audio-visual characteristics of the natural environment, which may include auditory noise levels** and illumination properties, 6.7 page 15), and the audio adaptation means (Resource Adaptation Engine, Figure 4 page 15) adapts the audio signal (A *resource* is an individually identifiable asset such as a video or audio clip, an image, or a textual asset, 6.2.11 page 9) and transmits the adapted audio signal to the user terminal (diverse sets of Users each with terminal(s), 6.7 page 14). MPEG-21 Overview v.4 does not explicitly teach adapting the audio signal to the user terminal by removing adverse effects caused by the sound environment of the user among the sound field characteristics of the audio signal based on the sound environment information. Rubak teaches a different methods to design digital filters aimed for equalization of loudspeaker/room responses by using inverse filters based on measured

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loudspeaker/room impulse responses combined with room and psychoacoustic knowledge (Abstract and 1.2). Rubak further teaches that room acoustic parameters including reverberation time T60, early decay time EDT, clarity C80, and interaural cross-correlation IACC are all taken into consideration when designing the equalization system (3.2, 3.2, and 4.7). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention given the teachings of Rubak to use room acoustic parameters based on measured impulse response to adapt an input signal transmitted to a user terminal as taught by MPEG-21 Overview v.4, since reducing the reverberant sound field for example, allows for material to achieve a sound similar to the sound when first mixed in a different surrounding (Rubak, 1.2).

Claim 6: MPEG-21 Overview v.4 and Rubak disclose the apparatus as recited in claim 5, wherein the sound environment information includes reverberation time information of the space (Rubak further teaches that room acoustic parameters including **reverberation time T60**, early decay time EDT, clarity C80, and interaural cross-correlation IACC are all taken into consideration when designing the equalization system, Rubak, 3.2, 3.2, and 4.7).

Claim 7: MPEG-21 Overview v.4 and Rubak disclose apparatus as recited in claim 5, wherein the sound environment information includes initial decay time of the space (Rubak further teaches that room acoustic parameters including reverberation time T60, **early decay time EDT**, clarity C80, and interaural cross-correlation IACC are all taken

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into consideration when designing the equalization system, Rubak, 3.2, 3.2, and 4.7).

Claim 8: MPEG-21 Overview v.4 and Rubak disclose apparatus as recited in claim 5, wherein the sound environment information includes energy ratio information between direct sound of the space and reflected sound after a predetermined time (Rubak further teaches that room acoustic parameters including reverberation time T60, early decay time EDT, **clarity C80**, and interaural cross-correlation IACC are all taken into consideration when designing the equalization system, Rubak, 3.2, 3.2, and 4.7).

Claim 9: MPEG-21 Overview v.4 and Rubak disclose apparatus as recited in claim 5, wherein the sound environment information is a physical quantity that indicates the sense of sound spread and the sound environment information includes similarity information of sound that arrives at each ear of the user (Rubak further teaches that room acoustic parameters including reverberation time T60, early decay time EDT, clarity C80, and **interaural cross-correlation IACC** are all taken into consideration when designing the equalization system, Rubak, 3.2, 3.2, and 4.7).

Claims 14 – 18 are substantially similar in scope to claims 5 – 9 respectively, and therefore are rejected using the same rationale.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Saunders whose telephone number is (571) 270-1063. The examiner can normally be reached on Monday - Thursday, 9:00 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 2615

/Sinh N Tran/
Supervisory Patent Examiner, Art Unit 2615